

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALBERT E. SEAVER
and
WILLIAM K. LEONARD

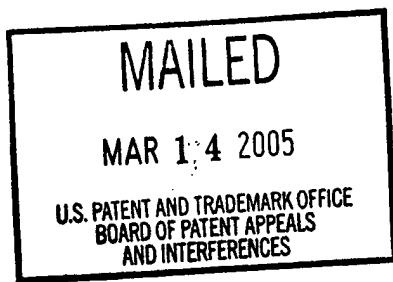
Appeal No. 2005-0381
Application No. 09/841,380

ON BRIEF

Before KIMLIN, WALTZ, and TIMM, *Administrative Patent Judges*.
TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 33-59. Claims 1-32, the only other claims pending in the application, have been withdrawn by the Examiner pursuant to a restriction requirement. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.



INTRODUCTION

The claims are directed to an electrostatic spray coating apparatus. The apparatus includes an electrostatic spray head and a circulating conductive transfer surface. The electrostatic spray head functions to electrostatically spray drops of liquid onto the circulating conductive transfer surface. According to the specification, a variety of types of electrostatic spray heads can be employed in the apparatus including those described in various prior art patents discussed in the specification (specification, p. 7, ll. 10-11). The specification describes two types of circulating conductive transfer surfaces, one is a drum (e.g. rotating grounded drum 14 shown in Fig. 1; specification, p. 7, ll. 5-7) and the other is a transfer belt (e.g. circulating grounded conductive transfer belt 41 shown in Fig. 4a; specification, p. 10, ll. 30-32). The circulating conductive transfer surface functions to transfer a portion of the liquid onto a substrate. The invention can be further understood from a reading of claim 33. Claim 33 reads as follows:

33. An apparatus comprising a liquid coating composition, a circulating conductive transfer surface that when wet with the liquid coating composition transfers a portion of the liquid coating composition to a substrate, and an electrostatic spray head that applies drops of the liquid coating composition onto a target region of the conductive transfer surface, wherein following startup of the apparatus and one or more circulations of the conductive transfer surface, the target region has a continuous coating of the liquid coating composition before newly applied drops land.

As evidence of unpatentability, the Examiner relies upon the following prior art references:

Neidich	2,833,666	May 6, 1958
Nakajima et al. (Nakajima)	4,847,110	July 11, 1989
Hess	6,503,325	Jan. 7, 2003
		(effectively filed Apr. 28, 1999)
Hall	GB 1,278,099	June 14, 1972

George L. Booth, *Evolution of Coating*, pp. 1-64 vol. 1, December 1995 (Booth).

The specific rejections maintained by the Examiner are as follows:

1. Claims 33-35 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Hess;¹
2. Claims 33-35, 37, 38, 43, 51, 52, and 54-59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima;²
3. Claims 36, 42, and 53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima and further in view of Booth;
4. Claims 38-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima and further in view of Neidich; and

¹The Answer refers to 35 U.S.C. § 102(b), but it is clear from the Final Rejection that the rejection is maintained under 35 U.S.C. § 102(e) and Appellants have correctly addressed the rejection as made under 35 U.S.C. § 102(e)(Brief, p. 10 and 14; Reply Brief, p. 3).

²The Examiner provided reasons why claim 55 is unpatentable, but did not include claim 55 in the statement of rejection. (Answer, p. 5). The omission of claim 55 from the statement of rejection is harmless error because Appellants understood claim 55 as being rejected as is evidenced from their arguments in the Briefs (Brief, pp. 25-26; Reply Brief, pp. 11-12).

5. Claims 44-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima and further in view of Hall.

Appellants state that the claims do not stand or fall together and they list various groupings (Brief, p.11). For each rejection, we will select one claim from each applicable grouping to resolve the issues on appeal.

We affirm the Examiner's decision with regard to all the rejections for the following reasons.

OPINION

As can be seen from a review of the Briefs and the Answer, the key issue in this appeal is one of claim interpretation. The claims, as set forth in the preambles, are directed to an apparatus. A review of the claims and the specification indicates that the apparatus is one which contains particular pieces of equipment for carrying out the process of coating a substrate. In interpreting the claims, we must respect the nature of what is claimed. *See Exxon Chem. Pats., Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557, 35 USPQ2d 1801, 1804 (Fed. Cir. 1995), *cert. denied*, 518 U.S. 1020 (1996)(Claims directed to a composition interpreted to preserve the nature of the thing claimed, i.e., a chemical composition). In so preserving the identity of the apparatus that is claimed, it must be kept in mind that "apparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1468, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The patentability of an apparatus claim depends on the claimed

structure, not on the use or purpose of that structure, *Catalina Marketing Int'l Inc. v. Coolsavings.com Inc.*, 289 F.3d 801, 809, 62 USPQ2d 1781, 1785 (Fed. Cir. 2002), or the function or result of that structure. *In re Danly*, 263 F.2d 844, 848, 120 USPQ 528, 531 (CCPA 1959); *In re Gardiner*, 171 F.2d 313, 315-16, 80 USPQ 99, 101 (CCPA 1948). Nor does an apparatus include the material worked upon by the apparatus. *See In re Rishoi*, 197 F.2d 342, 345, 94 USPQ 71, 73 (CCPA 1952)(“[T]here is no patentable combination between a device and the material upon which it works.”); *In re Young*, 75 F.2d 996, 998, 25 USPQ 69, 71 (CCPA 1935)(Inclusion of material worked upon by machine as an element in claim may not lend patentability when the claim is not otherwise allowable.).

Keeping in mind this interpretation of the claims, we turn to claim 33. This claim positively sets forth only two apparatus structures, a “circulating conductive transfer surface” and an “electrostatic spray head.” While the claim further recites “a liquid coating composition” as a portion of the apparatus and further recites how the apparatus operates in its intended use, the importance of those recitations is limited to how they further define the apparatus structure. It follows then that if a prior art apparatus possesses all of the claimed structural characteristics, including the capability of performing the claimed functions, then there is a *prima facie* case of unpatentability. *See In re Ludtke*, 441 F.2d 660, 663-64, 169 USPQ 563, 566-67 (CCPA 1971).

Anticipation of claims 33-35

The Examiner has rejected claims 33-35 as anticipated by Hess. We note that Appellants have not grouped any of these claims separately (Brief, p. 11). We select claim 33 to resolve the issues on appeal with regard to the anticipation rejection.

We determine that claim 33 is limited to an apparatus comprising a circulating conductive transfer surface and an electrostatic spray head: those are the only apparatus elements recited in claim 33. The other language of the claim limits the claim only insofar as it limits those structures of the apparatus. If the apparatus of Hess includes a circulating transfer surface and an electrostatic spray head capable of functioning as claimed, the apparatus of Hess anticipates claim 33.

We find that Figure 3 of Hess, the Figure relied upon by the Examiner, depicts an apparatus having the apparatus structure required by claim 33 including the capability of functioning as claimed. Specifically, roll 216 has a circulating transfer surface. Roll 216 is shown as grounded (Fig. 3) which necessarily conveys to one of ordinary skill in the art that the roll is conductive.³ Moreover, Figure 3 depicts an electrostatic spray head 218 positioned to

³The word “ground” is being used in Hess in its electrical context wherein the ground serves as a return point for the electric charges in an electric circuit. Such an electric circuit requires conductive components. Therefore, the description in Hess of a grounded roll put those of ordinary skill in the art in possession of a conductive roll. Such possession is adequate for a finding of anticipation. When speaking in terms of anticipation under the clause “patented or described in a printed publication” in section 102(b), the requirement of an enabling description is articulated as whether one of ordinary skill in the art is “put in possession of the invention.” *In re LeGrice*, 301 F.2d 929, 936, 133 USPQ 365, 372 (CCPA 1962). *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); *In re Collins*, 462 F.2d 538, 542, 174 USPQ 333, 337 (CCPA 1972); *In re Hoeksema*, 399 F.2d 269, 273, 158 USPQ 596, 600 (1968).

apply drops onto a target region of the roll 216. The positioning of the spray head and transfer surface in reference to each other is analogous to the positioning Appellants depict in their figures and, therefore, we find that the apparatus of Hess is capable of operating as claimed.

We are cognizant of the fact that Hess uses the apparatus in a somewhat different manner than claimed. Mainly, in the Figure 3 embodiment of Hess, the web 214a is placed so as to travel on the surface of the roll 216 such that, in the process of Hess, the coating is deposited directly on web 214a. This, however, does not change the fact that the positioning of the spray head and roll of Hess meet the requirements of claim 33. Suffice it to say that the claim recites only two structures, the transfer surface and spray head, and the apparatus of Hess has those structures arranged such that the apparatus of Hess is capable of operating as claimed when the web is repositioned to contact a different part of roll 216.

We cannot agree with Appellants that the claim requires any more structure than described by Hess. Nor must Hess show or, for that matter, describe the apparatus as operating in conformance with the functional limitations of the claim. Again, the claim is directed to an apparatus. The evidence supports the Examiner's decision to reject claims 33-35 as anticipated by Hess.

Obviousness of claims 33-35, 37, 38, 43, 51, 52, 54-59

Claims 33-35, 37, 38, 43, 51, 52, and 54-59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima. Appellants group the claims as follows (Brief, p. 11):

Claims 33-35, 51, 52, 54, 56, and 57 (Group I)
Claims 37 and 58 (Group III)
Claim 38 (Group IV)
Claim 43 (Group V)
Claim 55 (Group VII)
Claim 59 (Group VIII)

Group I, Claims 33-35, 51, 52, 54, 56, and 57

To represent the issues on appeal with regard to Group I, we select claim 33. As we explained above, claim 33 is anticipated by Hess. Needless to say, contrary to the arguments of Appellants (Brief, pp. 19-22), there are no deficiencies in Hess to cure.

Further, the evidence supports the Examiner's conclusion of obviousness. As found by the Examiner, Hess specifically states that "it is also feasible for the coating medium to be applied to the surface of a transfer roll which then transfers the coating layer to the material web." (Answer, p. 3 citing Hess, col. 6, ll. 42-48). We cannot agree with Appellants that no proper combination of Hess and Nakajima suggests the claim 33 apparatus (Brief, p. 20). In fact, Hess alone suggests the apparatus of claim 33. The suggestion to combine comes from the prior art, as filtered through the knowledge of one skilled in the art and, as such, is adequate for a conclusion of *prima facie* obviousness. See *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d

1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997). Nakajima simply provides further evidence as to what those of ordinary skill in the transfer coating art understood about the positioning of transfer rolls and drums in transfer apparatus.

We conclude that the Examiner established a *prima facie* case of obviousness with respect to the subject matter of claim 33 and those claims standing or falling therewith which has not been sufficiently rebutted by Appellants. We also note that, as we explained above, claim 33 is also anticipated by Hess.

Group III, Claims 37 and 58

To represent Group III, we select claim 37. Claim 37 requires that the transfer surface be grounded. Roll 216 of Hess is grounded (Hess, col. 6, ll. 12-14; ground symbol in Fig. 3). Hess anticipates claim 37. Lack of novelty is the ultimate or epitome of obviousness. *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982).

Moreover, the evidence supports the Examiner's conclusion of obviousness. When adopting the transfer roll embodiment suggested by Hess, it would have been obvious to one of ordinary skill in the art to ground the transfer roll as the transfer roll would be used in place of the roll 216 to receive the coating and the necessary electric potential differential would need to be created between the nozzle and the transfer roll.

We conclude that the Examiner established a *prima facie* case of obviousness with regard to the subject matter of claim 37 and claim 58, the claim standing or falling therewith, which was

not sufficiently rebutted by Appellants and that, moreover, the evidence supports a finding of anticipation.

Group IV, Claim 38

Claim 38 requires that the electrostatic spray head produce a line of charged droplets. We agree with the Examiner that the sprayer of Hess is capable of producing a line of charged droplets as claimed. Appellants argue that Hess shows the sprayer head described therein in cross-section only and that the sprayer head may produce circular patterns (Brief, p. 23; Reply Brief, p. 9). It appears that what Appellants are referring to is the possibility that the nozzle opening of Hess may be circular or annular rather than elongated. We are not convinced by this argument because it does not recognize the breath of the claim. The claim does not require an elongated nozzle opening nor does the claim exclude a circular nozzle opening. Any line of droplets meets the requirements of the claim. It reasonably appears that the nozzle of Hess is capable of generating droplets traveling in a line from the nozzle to the roll. This is due to the fact that operational parameters such as droplet viscosity, droplet velocity, electric potential differential, and other factors affect the path of the droplets to the surface. As it is reasonable to conclude that the electrostatic spray head of Hess is capable of producing the required line of charged droplets, claim 38 is anticipated by Hess. Again, lack of novelty is the ultimate or epitome of obviousness. *In re Fracalossi*, 681 F.2d at 794, 215 USPQ at 571.

We conclude that the Examiner established a *prima facie* case of unpatentability with regard to the subject matter of claim 38 which has not been sufficiently rebutted by Appellants.

Group V, Claim 43

Claim 43 further limits the apparatus of claim 33 to one further comprising one or more nip rolls that force the substrate against the conductive transfer surface. Appellants argue that there is no disclosure in Nakajima of nip rolls that force the substrate against the transfer roll (Brief, pp. 23-24; Reply Brief, pp. 9-10). According to Appellants, the pressure referred to by Nakajima in column 11, lines 29-32 is not a nip roll pressure, but a reference to outwardly directed air pressure that pushes the image forming elements 1 away from the cylinder 20.

We cannot agree with Appellants' interpretation of Nakajima. The pressure referred to in column 11, lines 29-32 is not air pressure, it is a nip pressure between transfer cylinder 20 and drum 24. This is made clear from a reading of the passage in the context of the entire paragraph and the preceding paragraph. Lines 29-32 refer to the pressure required to transfer the image forming elements 1 from the transfer cylinder 20 to the adhesive 3 carried on substrate 2. This transfer occurs as the image forming elements 1 and adhesive 3 contact each other between the transfer cylinder 20 and drum 24. Appellants point to column 11, lines 17-19 as supporting their interpretation of "pressure" in column 11, lines 29-32 as "air pressure," but column 11, lines 17-19 describe the use of air pressure to push image forming elements 1 out from the gun 21 and toward the transfer cylinder 21 in an earlier step in the process, i.e., the step of applying the image forming elements 1 to the transfer cylinder 21 before the image forming elements are transported to the nip area between the cylinder 21 and drum 24. The two discussions of pressure are referencing different portions of the process and are not both discussing air pressure.

We determine that Nakajima describes applying pressure between transfer cylinder 20 and drum 24 and, therefore, there are nip rolls that force the substrate against the conductive transfer device as claimed. No other portion of the rejection is disputed here.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to claim 43 which has not been sufficiently rebutted by Appellants.

Group VII, Claim 55

Claim 55 recites that the apparatus further comprises the substrate wherein the substrate is coated without substantial penetration of the coating through the substrate. The Examiner finds that the apparatus of Hess is capable of coating the substrate as claimed (Answer, p. 5). Appellants argue that “‘capability’ is not an adequate basis for alleging obviousness and is not sufficient by itself to establish a *prima facie* case of obviousness.” (Brief, pp. 25-26; Reply Brief, pp. 11-12).

First, we note that the “substrate” cannot be said to be part of the apparatus, it is an article worked upon by the apparatus. *See Rishoi*, 197 F.2d at 345, 94 USPQ at 73; *Young*, 75 F.2d at 998, 25 USPQ at 71. Moreover, Appellants have not convinced us of a reversible error in the Examiner’s application of the law. Where the prior art describes an apparatus having those positively recited apparatus elements and those structures are capable of functioning as claimed, the claim limitations are met. *Ludtke*, 441 F.2d at 663-64, 169 USPQ at 566-67.

In fact, the Examiner could have based the rejection on anticipation rather than obviousness. Anticipation being the epitome or ultimate of obviousness, *Fracalossi*, 681 F.2d at 794, 215 USPQ at 571, we cannot say that the Examiner failed to establish unpatentability.

Group VIII, Claim 59

Claim 59 is directed to “[a]n apparatus according to claim 33 wherein the spray head produces drops having an average drop diameter, the transfer surface transfers a coating having an average caliper to the substrate, the average caliper is less than the average drop diameter, and the transferred coating is substantially void-free.” Basically, the claim is directed to the “thin film process” wherein the droplets are deposited apart from each other and are allowed to spread to form a continuous thin film coating (specification, p. 2, ll. 2-7).

The limitations of claim 59, like those of claim 55, are functional in nature. The discussion with respect to claim 55 applies here as well. The Examiner has found that the spray head and transfer surface arrangement of Hess is capable of functioning as claimed (Answer, p. 5) and we find that finding reasonable in light of the disclosure of Hess. Particularly, the moisturized atmosphere of Hess maintains the liquidity of the droplets and thus the droplets are able to flow upon deposit (Hess, col. 1, l. 64 to col. 2, l. 8). Again, contrary to the arguments of Appellants (Brief, p. 26; Reply Brief, p. 12), for claims directed to an apparatus, the prior art need only describe an apparatus with structures capable of functioning as claimed to meet the limitations of the claim. *Ludtke*, 441 F.2d at 663-64, 169 USPQ at 566-67.

Appellants argue that the structural recitations of the claim are not met (Reply Brief,

p. 12). But the relevant structure, i.e., the spray head and transfer surface, are described by Hess and Appellants have not convinced us that those structures do not have the capability of functioning as claimed. That is enough to establish unpatentability in this case. In fact, the Examiner could have based the rejection on anticipation rather than obviousness.

Obviousness of Claims 36, 42, and 53

Claims 36, 42, and 53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima and further in view of Booth. The claims stand or fall together (Brief, p. 11). The claims are directed to the structure of the transfer surface. The surface must include a belt (claim 36) or a plurality of transfer surfaces (claims 42 and 53). The Examiner has applied Booth as evidence that belts and multiple transfer rolls were known in the art.

According to Appellants, a person having ordinary skill in the art who reviewed Booth would not combine Hess' coater or Nakajima's coater with Booths' steel casting belt. According to Appellants, Booth leads away from the modern-day use of steel belt casting (Brief, p. 29).

We cannot agree that Booth "teaches away" to the extent that there is no *prima facie* case of obviousness. "In general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). In other words, the reference must lead one of ordinary skill in the art to the conclusion that the process will not work. *See Baxter Int'l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328,

47 USPQ2d 1225, 1230 (Fed. Cir. 1998). There is no such teaching in Booth. Instead, Booth indicates that both belt and multiple roll transfer surfaces were known in the art. Booth also provides reasons for their use, e.g., belts are particularly well adapted for porous material coating (Booth, p. 38).⁴ But more importantly, Hess provides an express suggestion of using a transfer roll coater in the Hess process (Hess, col. 6, ll. 42-47). Given the express suggestion, one of ordinary skill in the art would have looked to conventional transfer roll coaters for use in the Hess apparatus and Booth indicates that belts and multiple transfer rolls were among the known transfer coater devices.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 36, 42, and 53 which has not been sufficiently rebutted by Appellants.

Obviousness of Claims 38-41

Claims 38-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima and further in view of Neidich. Claims 38-41 stand or fall together (Brief, p. 11). We select claim 38 to resolve the issues on appeal. Claim 38 is dependent on claim 33 and further requires that the electrostatic spray head produce a line of charged droplets. As we explained above, it is reasonable to conclude that Hess is capable of producing a line of charged droplets. No discussion of Neidich is required here.

⁴We note that U.S. Patent 4,569,864 issued to McIntyre, a patent discussed in Appellants specification, provides further evidence that the use of multiple transfer rolls was well known in the art.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 38-41 which has not been sufficiently rebutted by Appellants.

Obviousness of Claims 44-50

Claims 44-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hess and Nakajima and further in view of Hall. Claims 44-50 stand or fall together (Brief, p. 11). We select claim 44 to resolve the issues on appeal. Claim 44 is dependent on claim 33 and further requires “two or more pick and place devices that can periodically contact and re-contact the wet coating at different positions on the substrate, wherein the devices have periods that improve the uniformity of a coating on the substrate compared to a coating made without such devices.”

Appellants argue various limitations not present in claim 44 (Brief, pp. 33-35). We will only address the argument that is relevant to the limitations of claim 44 as claim 44 is the claim that represents the issues on appeal. The relevant argument is that the Examiner has not given a proper basis for selecting Hall from among the thousands of other references that generally involve coating and combining it with Hess and Nakajima (Brief, pp. 35-36).

That there is a proper basis for incorporating the smoothing rollers of Hall into the apparatus of Hess is evident from the references themselves. Hess is interested in applying a uniform smooth coating onto a web (Hess, col.1, ll. 39-50). Hall describes a way to accomplish smoothing of a coating. There is ample suggestion within the prior art references for incorporating the smoothing rollers of Hall into the apparatus of Hess.

We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 44-50 which has not been sufficiently rebutted by Appellants.

OTHER ISSUES

We bring to the Examiner's and Appellants' attention a patent that has issued from the application (S.N. 09/757,955) discussed on page 9 of Appellants' specification, namely, U.S. Patent 6,737,113 issued to Leonard et al. on May 18, 2004 (Leonard).⁵ Figure 17 depicts a coating needle 181 which applies a coating to a circulating conductive transfer belt surface 182 which then moves through pick and place rolls to a nip point between rolls 179 and 190 wherein the coating is transferred to a target web 189 (*see also* col. 12, ll. 5-66). We also direct attention to column 15, lines 19-23 which suggests the use of electrostatic spraying.

We also bring the Examiner's and Appellants' attention to U.S. Patent 5,326,598 issued to Seaver et al. on July 5, 1994 also discussed at page 9 of the specification. Seaver describes an electrostatic spray head producing a line of droplets and is described in the specification as the spray head used in the invention.

⁵Leonard appears to be prior art under 35 U.S.C. § 102(e).

Another patent discussed in the specification describes the use of multiple transfer rolls for applying a coating to a moving web. See U.S. Patent 4,569,864 issued to McIntyre on February 11, 1986.

In the event of further or continuing prosecution, the Examiner may wish to further evaluate patentability in light of the above prior art and any other relevant prior art.

CONCLUSION

To summarize, the decision of the Examiner to reject claims 33-59 under 35 U.S.C. § 103(a) is affirmed.

AFFIRMED

BOARD OF PATENT
APPEALS
AND
INTERFERENCES

CT/jrg

Appeal No. 2005-0381
Application No. 09/841,380

Page 20

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427